

01/09/14 Agenda

- Review Homework
 - Worksheet 4: Proportions Review
- Section 6.3 - Using Similar Polygons
- Homework
 - Worksheet 5 - Similar Polygons & Scale Factors

Section 6.3 - Use Similar Polygons

Target 6C

Goal:	Apply the properties of similar polygons, including writing a similarity statement and finding the scale factor. -----
Todays Takeaways:	1. Identify similar polygons and write a similarity statement.
SWBAT	2. Identify congruent parts of similar figures and those that are proportional. 3. Find the scale factor of similar polygons. 4. Solve for missing angles in similar polygons.

Goal 1. Identify similar polygons and write a similarity statement.

Goal 2. Identify congruent parts of similar figures and those that are proportional.

Definitions:

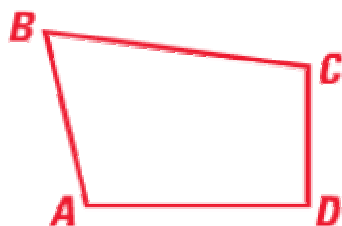
Polygon: A closed plane figure made of 3 or more segments which meet at endpoints (vertices).

Similar Polygons: Polygons with the same shape.
In similar polygons, the corresponding angles are congruent and the corresponding sides are proportional.



Example:

In the diagram below, ABCD is similar to EFGH. Notice in the similarity statement that the corresponding vertices are listed in the same order



$ABCD \sim EFGH$

Corresponding angles

$\angle A \cong \angle E$, $\angle B \cong \angle F$, $\angle C \cong \angle G$,
and $\angle D \cong \angle H$

Ratios of corresponding sides

$$\frac{AB}{EF} = \frac{BC}{FG} = \frac{CD}{GH} = \frac{DA}{HE}$$

Section 6.3 - Use Similar Polygons

Target 6C

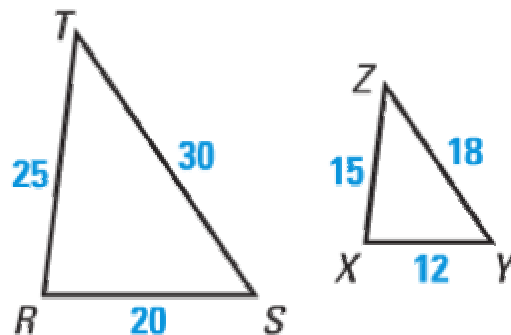
Goal 1. Identify similar polygons and write a similarity statement.

Goal 2. Identify congruent parts of similar figures and those that are proportional.

Example 1:

In the diagram, $\triangle RST \sim \triangle XYZ$.

- List all pairs of congruent angles.
- Check that the ratios of corresponding side lengths are equal.
- Write the ratios of the corresponding side lengths in a statement of proportionality.



a. $\angle R \cong \angle X$ $\angle S \cong \angle Y$ $\angle T \cong \angle Z$

b. $\frac{TR}{ZX} = \frac{25}{15} = \frac{5}{3}$ $\frac{TS}{ZY} = \frac{30}{18} = \frac{5}{3}$ $\frac{RS}{XY} = \frac{20}{12} = \frac{5}{3}$

c. $\frac{TR}{ZX} = \frac{TS}{ZY} = \frac{RS}{XY}$

Section 6.3 - Use Similar Polygons

Target 6C

Goal 3. Find the scale factor of similar polygons.

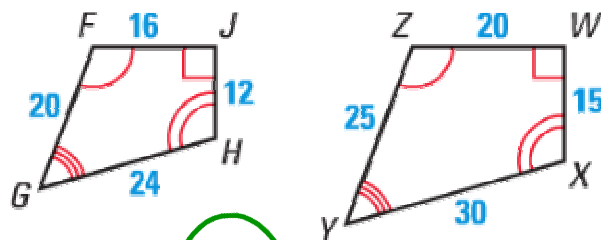
Scale Factor: If two polygons are similar, then the ratio of the lengths of two corresponding sides is called the **scale factor**.

In the Example 1, the scale factor of $\triangle RST$ to $\triangle XYZ$ is $\frac{5}{3}$

Example 2:

Determine whether the polygons are similar. If they are, write a similarity statement and find the scale factor of ZYXW to FGHJ.

$GFJH \sim YZWX$



$$\frac{FG}{ZY} = \frac{20}{25} = \frac{4}{5}$$

$$\frac{FJ}{ZW} = \frac{16}{20} = \frac{4}{5}$$

$$\frac{JH}{WX} = \frac{12}{15} = \frac{4}{5}$$

$$\frac{GH}{XY} = \frac{24}{30} = \frac{4}{5}$$

SCALE
FACTOR
 $= \frac{4}{5}$

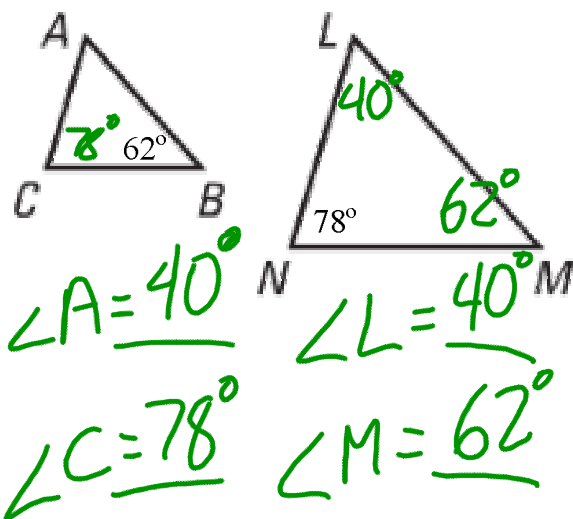
Section 6.3 - Use Similar Polygons

Target 6C

Goal 4. Solve for missing angles in similar polygons.

What are the missing angle measurements of the similar figures?

$$\triangle ABC \sim \triangle LMN$$



$$DEFG \sim PQRS$$

